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ABSTRACT

This study investigated the characteristics and beliefs of Head Start teachers and teacher aides and the classroom structural dimensions that are associated with Head Start classroom quality. The quality of classroom teaching practices was assessed using the Assessment Profile for Early Childhood Programs: Research Version. Teachers completed the Teacher Beliefs Scale and Instructional Activities Scale. The results provide strong support for previous research demonstrating that teacher's education and the classroom structure (including child to adult ratio and class size) are related to classroom quality for Head Start. The lack of relationship in the expected direction between teacher beliefs and educational level or years experience suggests that other factors have more influence over the beliefs of Head Start staff with regard to developmentally appropriate practices. Findings suggest that staff development training, management climate, local traditions of quality, and the informal influences that staff have on each other may be stronger determinants of teacher beliefs than formal education and experience. (JPB)

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Teacher Beliefs and Classroom Structure as Influences on Head Start Classroom Quality

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The quality of child care classrooms has been studied extensively over the last 20 years. Factors that have related to the quality of child care include: the stringency of state child care regulation (Helburn, et al., 1995; Phillips, Howes & Whitebook, 1992; Phillips, et al., in press; Whitebook, et al., 1989); the profit, non-profit and church-sponsored status of child care programs (Helburn, 1995; Phillips, Howes & Whitebook, 1992; Phillips, et al., in press; Whitebook, et al., 1989); teaching staff characteristics such as formal education, specialized training and wages (Hayes, et al., 1990; Helburn, 1995; Phillips, et al., in press; Ruopp, et al., 1979; Whitebook, et al., 1989); aspects of classroom structure such as staff to child ratios, group size, and amount and quality of space (Doherty, 1991; Hayes, et al., 1990; Helburn, 1995; Ruopp, et al., 1979; Whitebook, et al., 1989); and aspects of center structure such as size of enrollment, and administrator's characteristics and effectiveness (Doherty, 1991; Helburn, 1995). In identifying important variables for explaining child care quality, most of these studies have used correlational analyses with hierarchical regressions or discriminant analyses as well as structural equation modeling.

Granger (1988) and Chafel (1992) have identified some of these same factors as being related to the quality of Head Start. However, researchers have not statistically analyzed these characteristics as they relate to the quality of Head Start classrooms. The purpose of this study was to investigate the characteristics and beliefs of Head Start teachers and teacher aides and the classroom structural dimensions that are associated with Head Start classroom quality.

Method

Subjects

The Georgia State University Research Center on Head Start Quality is working in partnership with three Head Start programs in the southeast to address the influences on quality, and the impact of quality on children and families. The total sample size is 193 classrooms. While the *Assessment Profile for Early Childhood Programs: Research Version* (Abbott-Shim & Sibley, 1992) was collected for all classrooms, complete data was obtained, including teacher and aide demographics and beliefs, for 136 classrooms and this subset serves as the sample for this study.

Measures

The *Assessment Profile for Early Childhood Programs: Research Version* was used to observe the quality of classroom teaching practices. The instrument is an observation checklist with dichotomous items and includes five subscales: Learning Environment, Scheduling, Curriculum, Interacting, and Individualizing. The Learning Environment scale assesses the richness of the classroom setting by examining the provision, accessibility, variety, and developmental appropriateness of space and materials that support learning experiences and child independence. Scheduling measures the planfulness of the teacher with respect to the type, balance, and variety of activities included in a typical day. The Curriculum factor assesses the formalized approaches that shape the direction of activity in the classroom encompassing both child directed and teacher directed learning strategies. The Interacting scale examines the extent to which teachers initiate positive interactions with children, are responsive to children, and positively manage children's behavior. The Individualizing scale examines the extent to which the teacher can recognize and adapt to the unique and special needs of each child. The assessor looks for evidence that teachers address children's individualized learning experiences through assessment, planning, referrals, and communication with parents. The instrument yields item response theory (IRT) generated ability estimates for each factor which are rescaled relative to a national norm sample to be reported as standard scores with a mean of 50 and a standard deviation of 10 (Abbott-Shim, Sibley, & Neel, 1992). The classroom quality assessments were completed by trained observers who had passed both an initial reliability check following training and a second reliability check after completing approximately half of the observations. All raters achieved at least 90% agreement with experienced trainers.

Both content and criterion related validity have been demonstrated for the *Assessment Profile for Early Childhood Programs: Research Version* (Abbott-Shim, Sibley, & Neel, 1992). Content validity was documented through a review of the instrument by a wide range of early childhood professionals and a cross reference of the items with the Accreditation Criteria of the National Association for the Education of Young Children (NAEYC, 1984). Concurrent validity was established by examining the relationship of the *Assessment Profile for Early Childhood Programs: Research Version* to the *Early Childhood Environment Rating Scale* (Harms & Clifford, 1980). Validity studies have found significant correlations between the total scores of the two instruments of $r=.64$, $p<.01$ (Wilkes,

1989) and r=.74, p<.01 (Abbott-Shim, 1991). The reliability of the *Assessment Profile for Early Childhood Programs: Research Version* has been demonstrated for the five scales with Kuder-Richardson 20 and Spearman-Brown corrected split-half reliability coefficients ranging from .79 to .98 and .81 to .98 respectively. The IRT based reliability coefficients for the five scales range from .83 to .91.

The *Teacher Beliefs Scale* (Burts, 1991) assesses various aspects of teacher beliefs about developmentally appropriate practices and instructional activities. It is a teacher self-report measure derived from the NAEYC position paper on developmentally appropriate practice in Programs for four and five year olds (Charlesworth, et al., 1991) and has been normed on 113 kindergarten teachers. It has been used previously in Head Start settings and with teachers of at risk children (Morelock & Mantzicopoulos, 1994; Mantzicopoulos & Neuharth-Pritchett, 1994). The scale was completed by both teachers and aides and yields appropriate and inappropriate scales for both beliefs and instructional activities. Only the inappropriate scales were used in this study as they tend to be less influenced by socially desirable responses and yielded more variability than did the appropriate scales.

Procedure

The quality of classroom teaching practices and procedures was collected using the *Assessment Profile for Early Childhood Programs: Research Version* (Abbott-Shim & Sibley, 1992) by observing on 15 minute rotation cycles for a total of one hour, a review of specific classroom documents, and a fifteen minute interview with the teacher. Descriptive structural characteristics about each classroom including class size (number of children) and number of adults present were also recorded at the time of the classroom observation. The teachers and teacher aides completed the following self-report, survey instruments: Teacher Beliefs Scale and Instructional Activities Scale (Burts, 1991).

Data were collected in the fall of 1997. Survey instruments were distributed to the teachers and teacher aides in the three Head Start programs. Data collectors were trained to collect the classroom observations using the *Assessment Profile*. Acceptable levels of agreement and reliability were obtained for all observers during the training period that preceded data collection.

Results

Table 1 presents the means, standard deviations, and ranges of the variables that appeared in the regression models. The mean scale scores for this sample on each dimension of classroom quality fell within the normal range as based on national norms. In addition, there was substantial variability in quality on each indicator with the low scores falling below one standard deviation below the national mean and the high scores falling more than one standard deviation above the national mean. As expected, the aides have, on average, less experience and education than do the teachers.

Table 1 About Here

Table 2 reports the bivariate correlation matrix of all variables in the models. Several correlations are worth noting. Higher scores on all of the beliefs scales indicate more inappropriate responses to the items contained in these scales. Therefore, negative correlations between the beliefs scales and other quality indicators would be expected. The two beliefs scales were associated (r=.40) for teachers and similarly associated for aides (r=.43). The beliefs of teachers and aides about inappropriate activities are modestly correlated (r=.38) suggesting some agreement between staff within the same classrooms. However, there was not a similar finding regarding beliefs about developmentally appropriate practices (r=.16) suggesting substantial disagreement between staff working within the same classroom regarding these beliefs. Neither education or experience for either teachers or aides were negatively associated with beliefs. The only statistically significant correlation between education level or experience and beliefs was between aide education level and aide beliefs about developmentally appropriate practices (r=.25). However, the positive direction suggests that as education level increases for aides their beliefs tend to become more inappropriate.

Table 2 About Here

Each model initially controlled for classroom structural characteristics as measured by class size and adult child ratio. Next, the years of teaching experience and educational level for both the teacher and aide were entered followed by the beliefs about developmentally appropriate practices and activities as reported by both the teacher and aide. The last step tested whether interaction terms, formed to represent the combination of beliefs from both the teacher and aide, would contribute any additional explanatory power to the models. For Learning Environment, teachers' years of experience, teachers' inappropriate beliefs, and the interaction between teacher and aide regarding inappropriate beliefs all contributed to the model (r^2=.28). The relationship between teachers' years of experience and Learning Environment was negative, suggesting that the teachers with the most experience are not those with the highest quality classrooms. This finding may be explained in part by teachers with many years of experience being less open to new ideas and developmental appropriate teaching strategies. In addition, it may be that the better teachers go on to other, more highly paying positions. When an additional exploratory analysis was conducted with a reduced model that contained only the statistically predictors, almost the same degree of variance was accounted for (r^2=.24). A similar process was applied to each of the models and referred to as the reduced models. For Scheduling, the teacher aides' education level and inappropriate beliefs, and the teacher's beliefs about inappropriate activities all contributed to the model (r^2=.25). The reduced model resulted in r^2=.19. For Curriculum, teachers' beliefs about inappropriate activities contributed to the model (r^2=.25). The reduced model r^2=.14. For Interacting, class size contributed to the model (r^2=.17). The reduced model r^2=.03. However, the interaction term between the teacher and aide inappropriate beliefs about activities alone resulted in r^2=.09. For Individualizing, class size and aide's beliefs about inappropriate activities were statistically significant predictors (r^2=.30). The reduced model r^2=.21.

Tables 3,4,5,6 and 7 About Here

Discussion

This study provides strong support to previous research demonstrating that the teachers' and teacher aides' education and the classroom structure (child to adult ratio and class size) are related to classroom quality for Head Start.

The lack of relationship in the expected direction between teacher or teacher aide beliefs and educational level or years experience suggests that other factors have more influence over the beliefs of Head Start staff with regard to developmentally appropriate practices. These findings may suggest that staff development training, management climate, supervision, local traditions of quality, and the informal influences that staff have on each other may be stronger determinants of teacher beliefs than is formal training and experience.

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Table 1. Means, Standard Deviations, and Ranges of Variables in the Models.

	Mean	SD	Range	
Classroom Quality				
Learning Environment	54.25	5.27	34.95	65.12
Scheduling	59.51	6.10	39.75	65.75
Curriculum	46.29	7.79	31.14	63.81
Interacting	50.77	6.60	33.48	59.01
Individualizing	54.35	9.39	28.18	65.80
Inappropriate Beliefs				
Teacher	1.37	.36	1.00	2.83
Aide	1.59	.48	1.00	2.92
Inappropriate Activities				
Teacher	1.80	.65	1.00	4.33
Aide	1.91	.62	1.00	3.77
Education Levels				
Teacher	14.21	1.62	11	18
Aide	13.33	1.42	10	18
Experience in Years				
Teacher Experience	7.55	9.06	0.00	54.00
Aide Experience	2.50	5.65	0.00	33.00
Teacher Education	14.21	1.62	11.00	18.00
Aide Education	13.33	1.42	10.00	18.00
Structure				
Class Size	16.74	2.14	10.0	20.0
Adult Child Ratio	7.50	1.82	3.0	10.0

Note. n=136.

Table 2. Correlations Between Classroom Quality and Structural Indicators.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 ClsSize	---														
2 Ratio	*57	---													
3 Learn	-13	-13	---												
4 Curr	-13	-16	*42	---											
5 Sched	-02	-09	11	*38	---										
6 Inter	*-22	-01	*37	*60	*21	---									
7 Individ	*-28	*-20	*47	*55	14	*39	---								
8 Educ-T	11	00	05	15	13	-03	-01	---							
9 Educ-A	-10	*-29	11	-02	*21	-06	-06	01	---						
10 InAct-T	*22	15	-15	*-18	*-28	*-21	*-37	07	02	---					
11 InAct-A	*21	*17	-09	*-24	-14	*-21	*-32	01	07	*38	---				
12 InBel-T	*24	13	*-34	-14	-04	-12	*-27	04	-05	*40	16	---			
13 InBel-A	11	01	-16	*-31	15	-16	-15	01	*25	*18	*43	16	---		
14 Exp-T	01	-01	*-29	*-22	-09	-13	*-25	-04	-04	03	00	-01	01	---	
15 Exp-A	-07	-12	-02	10	00	03	03	-05	07	-02	-12	-04	-03	17	---

Key. ChSize=Number of children in the classroom, Ratio-Adult child ratio, Learn, Curr, Sched, Inter, and Individ=the five scales of the *Assessment Profile for Early Childhood Programs: Research Version*, Educ-T, Educ-A=the education level for the teacher and aide, InAct-T, InAct-A=The Inappropriate Activities scale scores for the teacher and aide, InBel-T, InBel-A=The Inappropriate Beliefs scale scores for the teacher and aide, Exp-T, Exp-A=the years of teaching experience for the teacher and aide. *=p< .05.

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Table 3. The Learning Environment Model.

Variable	Beta	p	r^2	p	Δr^2	p
Class Size	-0.11	0.37	0.02	0.38	0.02	0.38
Adult Child Ratio	-0.04	0.73				
Teacher's Years of Experience	-0.24	0.01	0.08	0.17	0.06	0.13
Teacher's Education Level	0.00	0.96				
Aide's Years of Experience	-0.02	0.84				
Aide's Education Level	0.07	0.50				
Teacher's Inappropriate Beliefs	-0.33	0.00	0.23	0.00	0.15	0.00
Teacher's Inappropriate Activities	-0.04	0.72				
Aide's Inappropriate Beliefs	-0.12	0.25				
Aide's Inappropriate Activities	0.00	0.96				
Beliefs Interaction	-1.51	0.02	0.28	0.00	0.05	0.05
Activities Interaction	0.48	0.26				

Note. - Interaction terms represent the interaction or agreement between Teacher and Aide.

Table 4. The Scheduling Model.

Variable	Beta	p	r^2	p	Δr^2	p
Class Size	-0.01	0.94	0.01	0.70	0.01	0.70
Adult Child Ratio	-0.08	0.52				
Teacher's Years of Experience	-0.09	0.36	0.09	0.16	0.08	0.07
Teacher's Education Level	0.15	0.12				
Aide's Years of Experience	0.05	0.61				
Aide's Education Level	0.22	0.03				
Teacher's Inappropriate Beliefs	0.05	0.65	0.24	0.00	0.15	0.00
Teacher's Inappropriate Activities	-0.34	0.00				
Aide's Inappropriate Beliefs	0.24	0.02				
Aide's Inappropriate Activities	-0.16	0.13				
Beliefs Interaction	-0.01	0.98	0.25	0.00	0.01	0.47
Activities Interaction	0.51	0.24				

Note. - Interaction terms represent the interaction or agreement between Teacher and Aide.

Table 5. The Curriculum Model.

Variable	Beta	p	r^2	p	Δr^2	p
Class Size	-0.02	0.83	0.03	0.21	0.03	0.21
Adult Child Ratio	-0.17	0.19				
Teacher's Years of Experience	-0.15	0.12	0.08	0.21	0.05	0.26
Teacher's Education Level	0.11	0.28				
Aide's Years of Experience	0.10	0.30				
Aide's Education Level	-0.10	0.33				
Teacher's Inappropriate Beliefs	0.04	0.70	0.23	0.00	0.15	0.00
Teacher's Inappropriate Activities	-0.27	0.02				
Aide's Inappropriate Beliefs	-0.11	0.28				
Aide's Inappropriate Activities	-0.15	0.19				
Beliefs Interaction	-1.01	0.11	0.25	0.00	0.02	0.26
Activities Interaction	0.37	0.39				

Note. - Interaction terms represent the interaction or agreement between Teacher and Aide.

Table 6. The Interacting Model.

Variable	Beta	p	r^2	p	Δr^2	p
Class Size	-0.26	0.03	0.05	0.09	0.05	0.09
Adult Child Ratio	0.13	0.25				
Teacher's Years of Experience	-0.11	0.26	0.07	0.25	0.02	0.55
Teacher's Education Level	-0.03	0.78				
Aide's Years of Experience	0.02	0.81				
Aide's Education Level	-0.14	0.17				
Teacher's Inappropriate Beliefs	0.06	0.62	0.14	0.14	0.07	0.14
Teacher's Inappropriate Activities	-0.17	0.16				
Aide's Inappropriate Beliefs	-0.10	0.39				
Aide's Inappropriate Activities	-0.10	0.39				
Beliefs Interaction	-1.16	0.08	0.17	0.09	0.03	0.13
Activities Interaction	-0.21	0.64				

Note. - Interaction terms represent the interaction or agreement between Teacher and Aide.

Table 7. The Individualizing Model.

Variable	Beta	p	r^2	p	Δr^2	p
Class Size	-0.31	0.01	0.10	0.01	0.10	0.01
Adult Child Ratio	0.00	0.97				
Teacher's Years of Experience	-0.11	0.24	0.12	0.05	0.02	0.63
Teacher's Education Level	0.02	0.85				
Aide's Years of Experience	0.02	0.87				
Aide's Education Level	-0.11	0.27				
Teacher's Inappropriate Beliefs	-0.10	0.33	0.28	0.00	0.16	0.00
Teacher's Inappropriate Activities	-0.16	0.16				
Aide's Inappropriate Beliefs	-0.02	0.84				
Aide's Inappropriate Activities	-0.27	0.01				
Beliefs Interaction	-1.01	0.10	0.30	0.00	0.02	0.20
Activities Interaction	0.48	0.25				

Note. - Interaction terms represent the interaction or agreement between Teacher and Aide.